
Welcome !
This meeting will be Recorded.
Please mute your cell phones
Thank you!
ARIZONA DEPARTMENT of WATER RESOURCES
EST. 1980

Arizona Water Initiative Northwest Basins Planning Area Stakeholders Meeting

Agenda

1. Welcome, Introductions and Updates
2. Data Collection Plan Presentation
3. Preliminary Municipal Water Demand Presentation
4. Presentation on Arizona's Recharge Program
5. General Comment
6. Closing Remarks

Arizona Water Initiative Update

❖ Governor's Water Augmentation Council

- ❖ Last meeting was October 28.
  - ❖ They discussed:
    - ❖ Planning Area Updates (including Northwest Basins) on meeting information and stakeholder concerns
    - ❖ Formation of Recycled Water Committee
    - ❖ Updates from the Desalination Committee second meeting

West Basins Planning Area

- ❖ Discussed the final Municipal Water Demand Updates 10/5
- ❖ Further meetings are being planned

Cochise Planning Area

- ❖ Last meeting was on November 30, 2016
- ❖ Discussed the final Industrial Water Demand Projections
- ❖ Guest Presentation on the Willcox Basin Groundwater Conservation Area Concept

Previous Northwest Basins Meeting Recap (September 8)

* Discussed the Northwest Basins Planning Area Background Information
* Discussed previously identified mitigation strategies
  * (Potential for Permitted Recharge)
* Presented the existing water demand data sets from the WRDC and Strategic Vision
* Breakout discussion groups for 3 water use sectors (Agriculture, Industrial and Municipal)
  * Suggested methodology from the Municipal group will be used and discussed today

Municipal Demand Data Collection

Arizona Water Initiative

Northwest Basins

Planning Area

December 6, 2016

John Riggins

Stakeholder Suggested Municipal Data Collection Methodology

From the Municipal Water Demand Data Table during the meeting on September 8th:

Suggestion to use Community Water System (CWS) and Arizona Corporation Commission (ACC) water usage provided in annual reports to establish the Gallons Per Capita Per Day (GPCD) for municipal water use data updates.

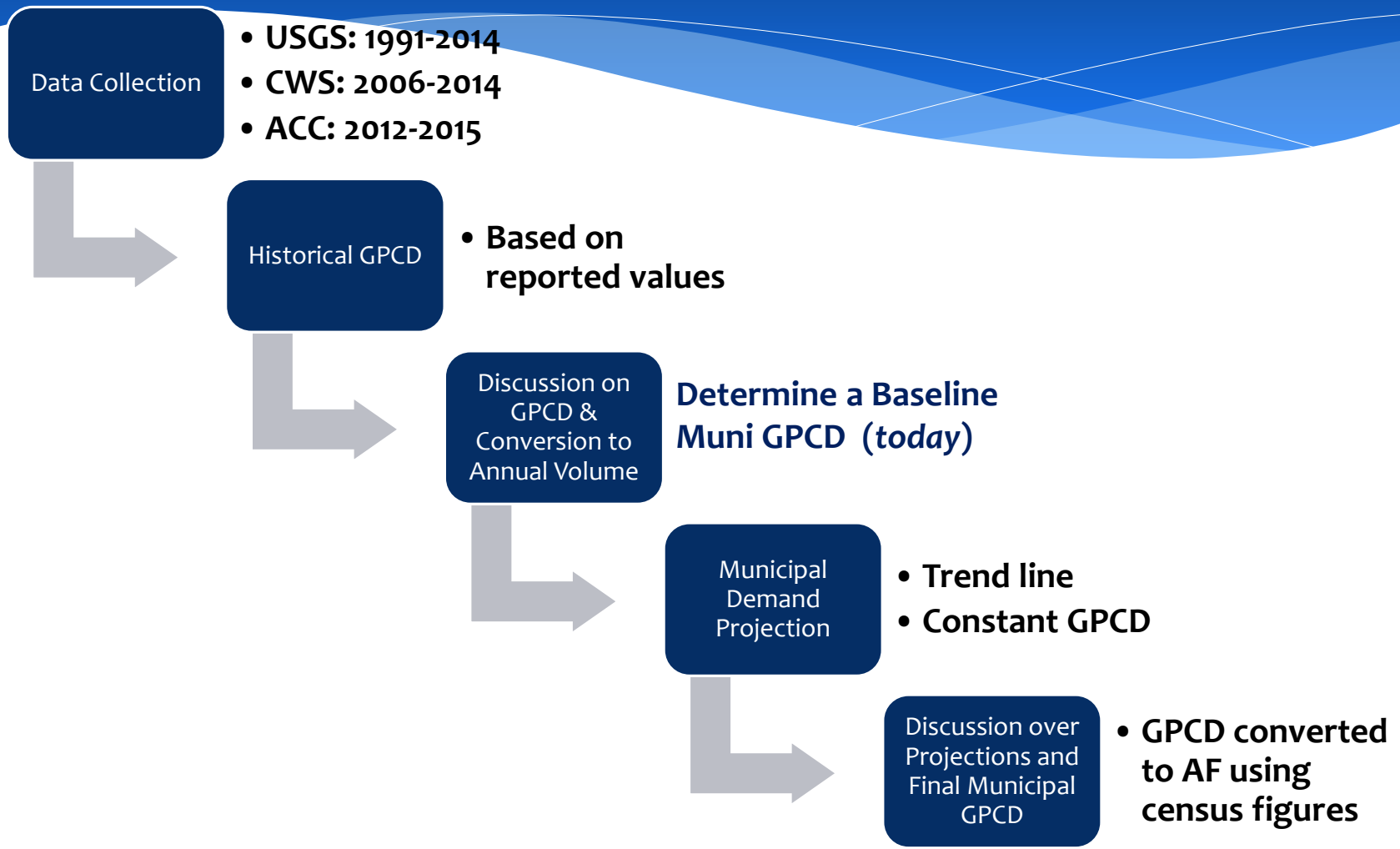
We will also update the municipal water demand for the NW Basins Planning Area in acre-feet

What do we mean by Municipal?

- Municipal water use is water used by a population
- 2010 USGS study found the majority of Americans used water provided by public suppliers (such as Community Water Systems)
- That same study found only 1% of total groundwater withdrawals were from self-supplied source such as a private well.
- Private well withdrawals are not required to meter or report their water withdrawals.

source: Maupin, M.A., Kenny, J.F., Hutson, S.S., Lovelace, J.K., Barber, N.L., and Linsey, K.S., 2014, Estimated use of water in the United States in 2010: U.S. Geological Survey Circular 1405, 56 p., http://pubs.usgs.gov/circ/1405/.)

Methodology



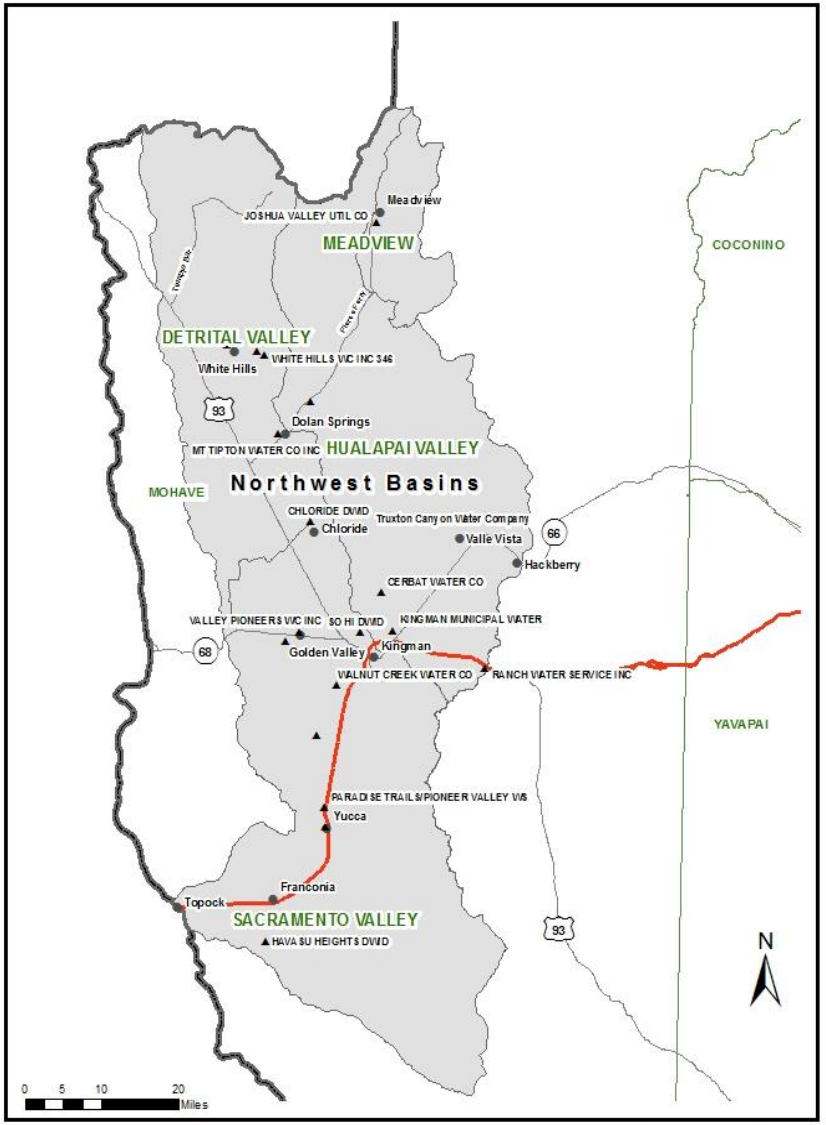
CWS Data Collection

Community Water Systems

(19 total)

- Detrital Basin:
  - *GHR LANDOWNERS ASSN WATER COOP*
  - *MT TIPTON WATER CO INC*
  - *WHITE HILLS WC, INC.*
  - *WHITE HILLS WTR CO INC 1*
- Hualapai Basin
  - *CERBAT WATER CO*
  - *JOSHUA HILLS WATER CO*
  - *KINGMAN MUNICIPAL WATER*
  - *RANCH WATER SERVICE INC*
  - *TRUXTON CANYON WATER CO. INC.*
- Meadview Basin
  - *JOSHUA VALLEY UTIL CO*
- Sacramento Basin
  - *CHLORIDE DWID*
  - *GOLDEN VALLEY IMP DIST #1*
  - *Havasu Heights DWID*
  - **I-40 INDUSTRIAL WATER SYS*
  - *PARADISE TRAILS / PIONEER VALLEY WS (Double R Water Distributors, Inc.)*
  - *SO HI DWID*
  - **VALLEY PIONEERS WC, INC*
  - *WALNUT CREEK WATER CO*
  - *YUCCA WATER ASSOCIATION*

*Industrial Use noted



Northwest Basins
Community Water Systems
2015 Annual Reports

Data Collection: Using CWS Annual Reporting

* **Community Water Systems Annual Reports:**
  * https://infoshare.azwater.gov/docushare/dsweb/HomePage

Part I - Water Withdrawn - A

Well Registry ID	Measurement	Quantity Withdrawn (AF)
[redacted]	METR - METERED	7.17
[redacted]	METR - METERED	86.17
[redacted]	METR - METERED	205.42
[redacted]	METR - METERED	518.94
[redacted]	METR - METERED	60.83
[redacted]	METR - METERED	1.90
	Total Water Withdrawn (ac-ft):	880.43

Example

Part V Water Delivered to Customers - A:

Customer Type	Number of Connections	Quantity Delivered
RESIDENTIAL		
SINGLE FAMILY	2,459	428.35
ULTI FAMILY	8	17.90
-RESIDENTIAL		
OMMERCIAL	83	83.71
RF	0	0.25
OTHER	0	81.87
[redacted]		
Total Connections:	2,550	Total Delivered: 612.08

Example

People Served by Community Water Systems

Part V Water Delivered to Customers - A:

Customer Type	Number of Connections	Quantity Delivered
RESIDENTIAL		
SINGLE FAMILY	2,459	428.35
MULTI FAMILY	8	17.90
NON-RESIDENTIAL		
COMMERCIAL	83	83.71
TURF	0	0.25
OTHER	0	81.87
[redacted]		
Total Connections:	2,550	**Total Delivered:** 612.08

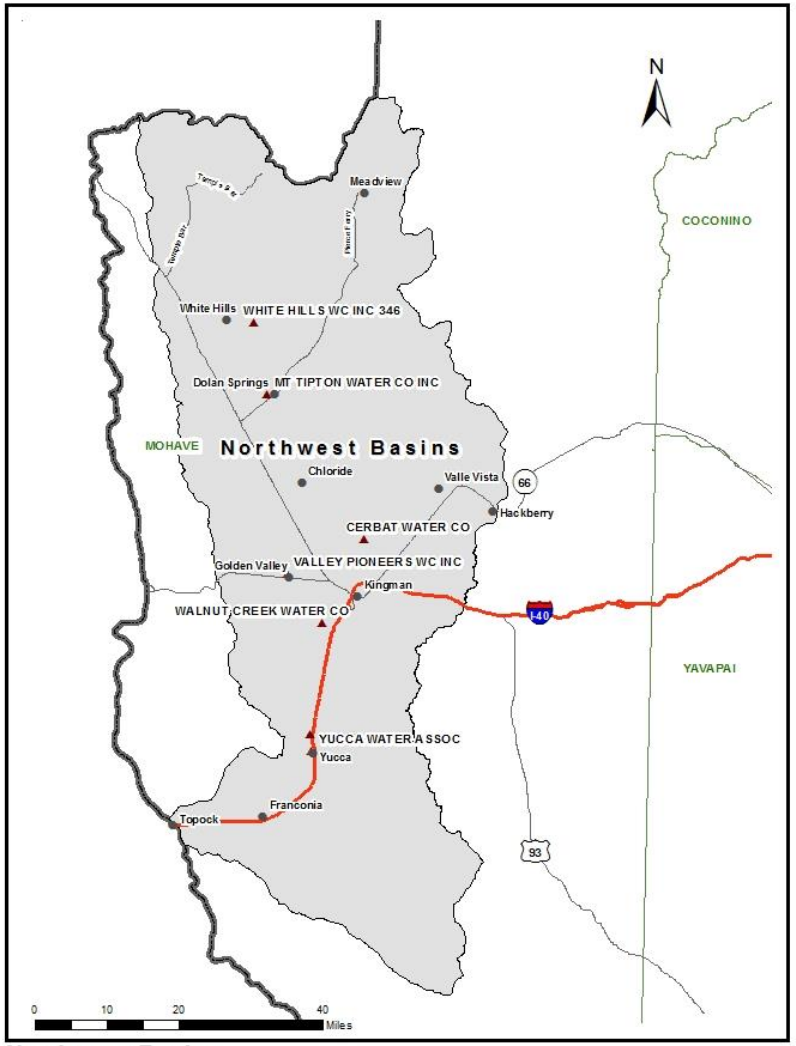
Example

Population for CWS data calculated using Number of Connections (Multiplied by) Mohave County pphu US Census data {2.43 pphu Coefficient}

ACC Data Collection

ACC Regulated Water Systems
(9 total)

- Detrital Basin
  - Mt. Tipton Water Co Inc.
  - White Hills WC, Inc.
- Hualapai Basin
  - Cerbat Water Co.
  - Truxton Canyon Water Co. Inc.
- Meadview Basin
  - Joshua Valley Utility Co.
- Sacramento Basin
  - Paradise Trails/Pioneer Valley Water System
  - *Valley Pioneers WC, Inc.
  - Walnut Creek Water Co.
  - Yucca Water Association



Northwest Basins
Planning Area
ACC Regulated Water Utilities
2015 Annual Report

*Industrial use noted

Data Collection: Using ACC Annual Reporting

* **Arizona Corporation Commission** Water Company Annual Reports (only available from 2012 – 2015):
  * http://www.azcc.gov/Divisions/Utilities/Annual%20Reports/water.asp

COMPANY NAME: [redacted]

Name of System: [redacted] ADEQ Public Water System Number: [redacted]

WATER USE DATA SHEET BY MONTH FOR CALENDAR YEAR 2015

MONTH	NUMBER OF CUSTOMERS	GALLONS SOLD (Thousands)	GALLONS PUMPED (Thousands)	GALLONS PURCHASED (Thousands)
JANUARY	2560	12777	43613	
FEBRUARY	2560	9984	15501	
MARCH	2561	10444	15206	
APRIL	2561	16160	24211	
MAY	2561	13771	18237	
JUNE	2561	16301	22060	
JULY	2558	23470	32467	
AUGUST	2561	18267	25482	
SEPTEMBER	2558	20573	31366	
OCTOBER	2560	14331	22708	
NOVEMBER	2560	11635	19555	
DECEMBER	2560	10732	16482	
	TOTALS →	178445	286888	

Example

People Served by the Arizona Corporation Commission

COMPANY NAME: [redacted]

Name of System: [redacted] ADEQ Public Water System Number: [redacted]

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	TOTALS →	178445	286888	

Example

People served for ACC data calculated using Number of Customers (Multiplied by) Mohave County *pphu US Census data {2.43 pphu Coefficient}

*pphu: people per housing unit estimate

USGS Annual Municipal Groundwater Withdrawal Estimates

Basin	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Detrital Valley	<300	<300	<300	<300	<300	<300	<300	400	350	<300	<300
Hualapai Valley	8,400	9,100	8,800	9,000	9,200	8,600	8,200	8,400	7,900	8,300	8,300
Meadview	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300	<300
Sacramento Valley	2,400	2,300	2,500	2,800	2,900	2,700	2,100	3,100	3,000	2,000	1,900

USGS Estimates 1991-2014

Table 3. Estimated annual ground-water withdrawals for municipal use in ground-water basins outside of Active Management Areas, Arizona, 1991-2014

[Values in acre-feet (rounded) < less than]

Data Collection Summary

$$\frac{Total\ Water\ Withdrawal - Reported\ Industrial\ Uses}{^{1}Reported\ connections\ or\ customers \times 2.43\ pphu} \chi \frac{(325{,}851\ Gallons)}{365\ days} = GPCD$$

[1] If Reported connections or customers are unavailable, Arizona Department of Environmental Quality (ADEQ) reported population values were used from Water System Reports.


Questions?
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Municipal Demand Data Update

Arizona Water Initiative

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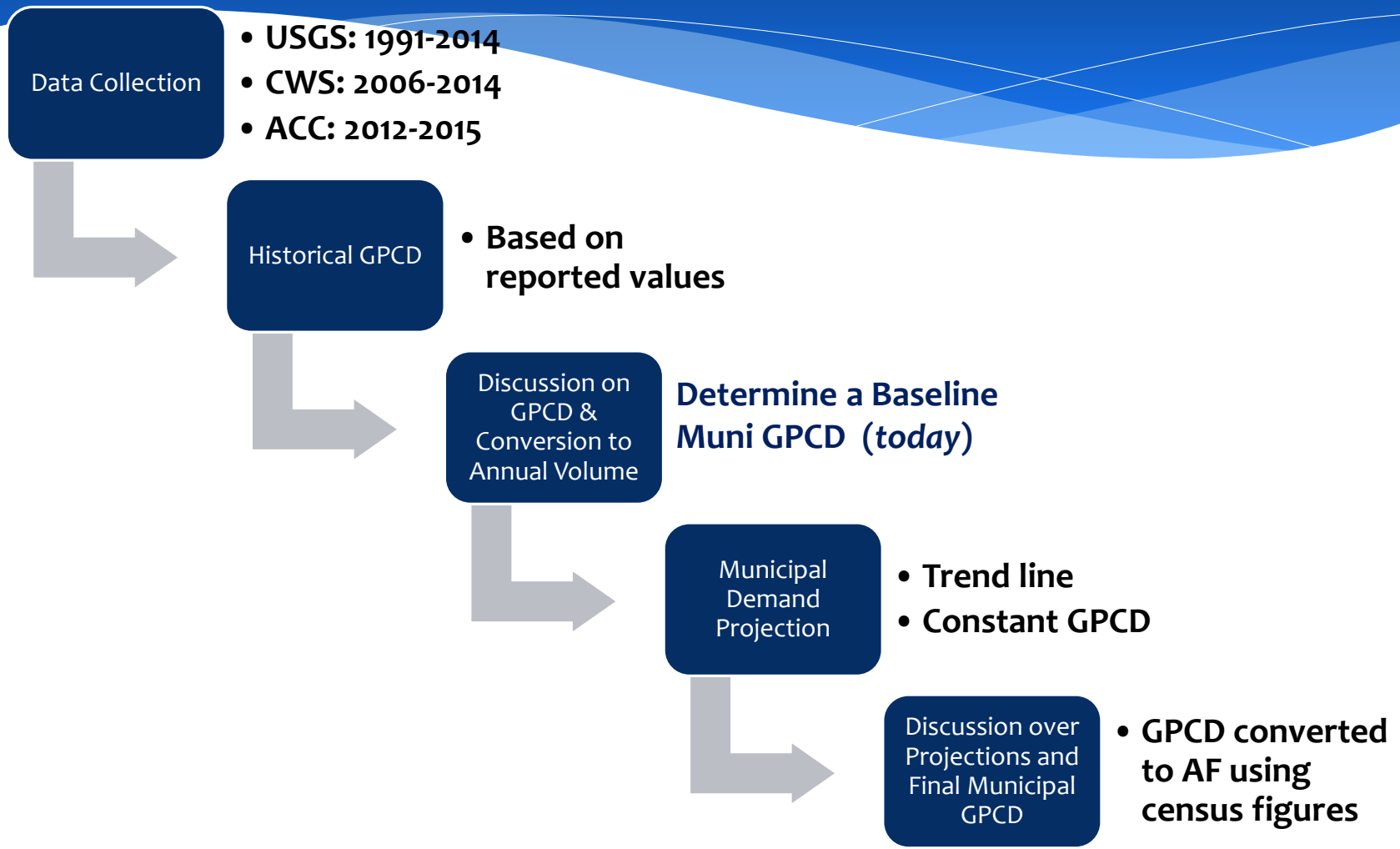
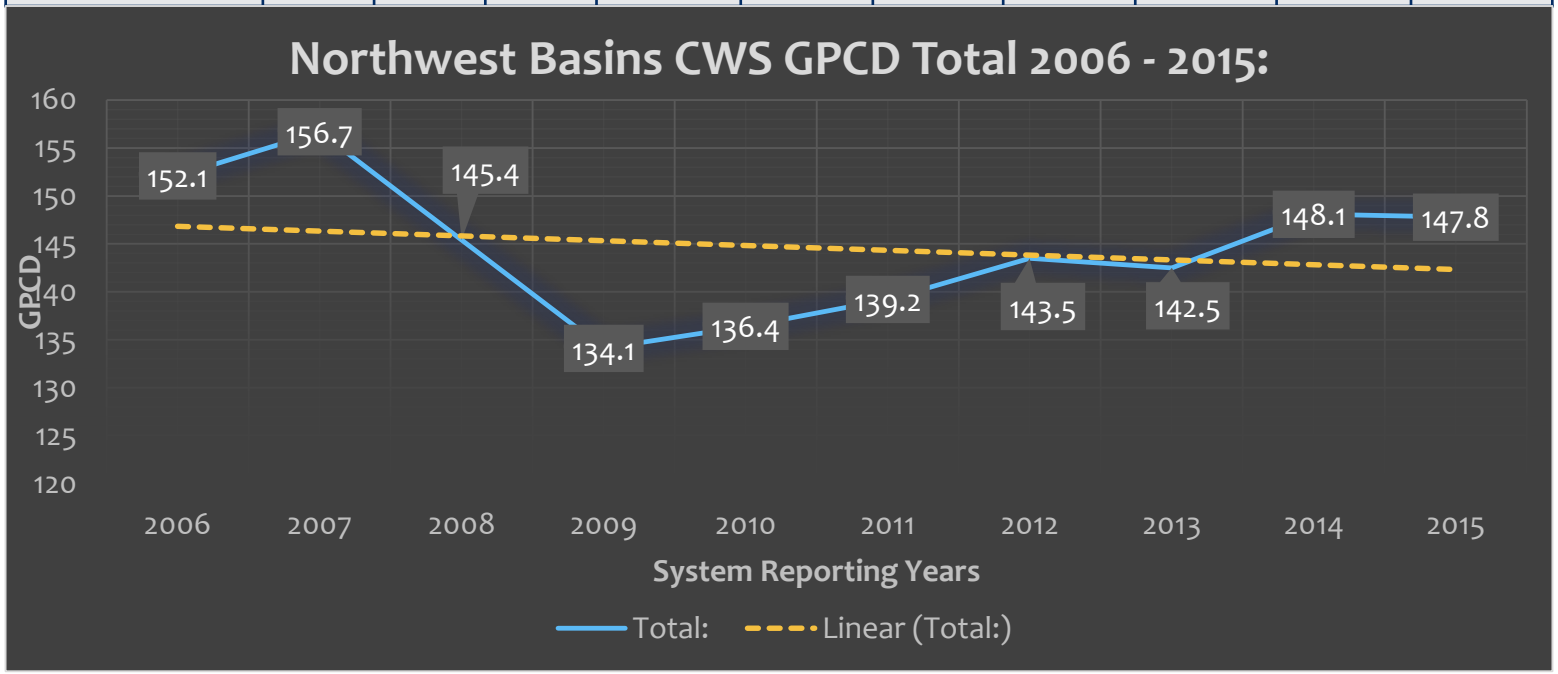
Methodology



Northwest Basins Planning Area CWS GPCD Total

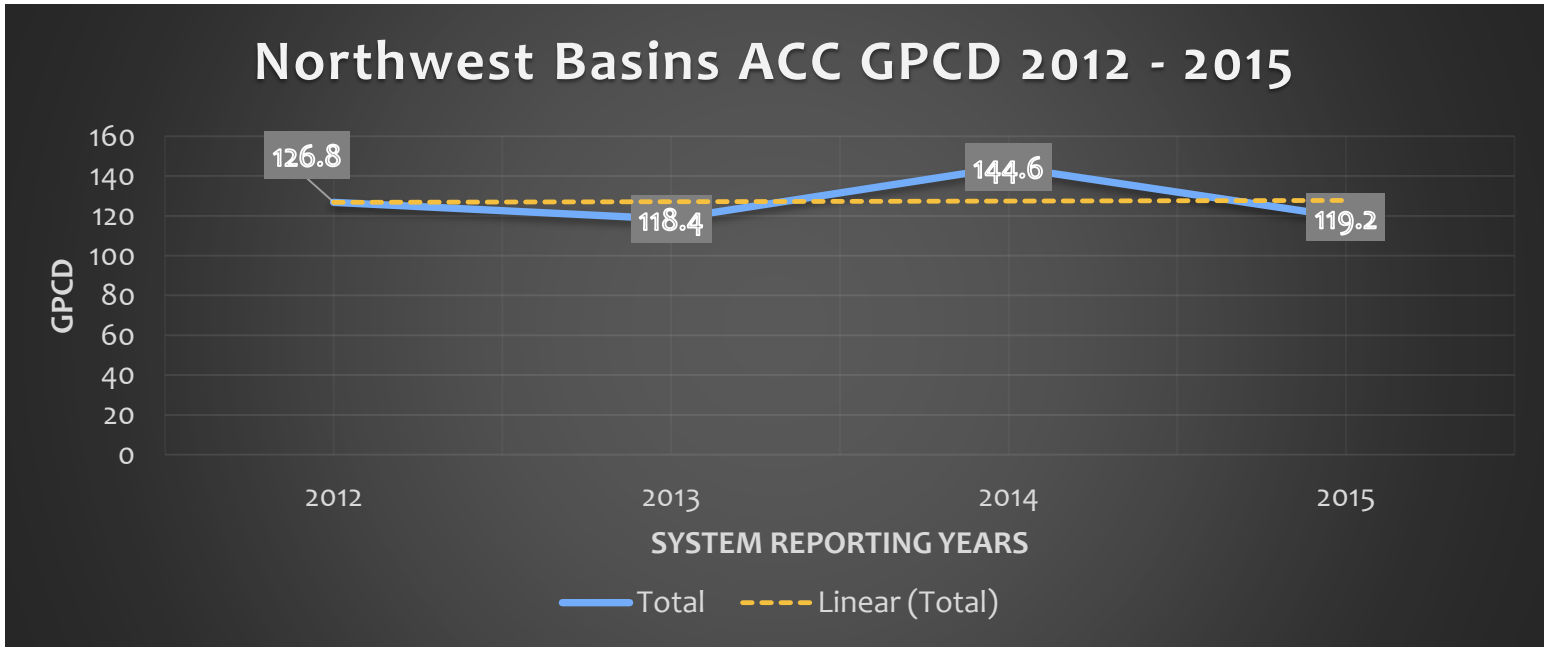
NWB TOTAL CWS GPCD	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Total:	152.1	156.7	145.4	134.1	136.4	139.2	143.5	142.5	148.1	147.8



GPCD quantities in Gallons

Northwest Basins Planning Area ACC GPCD Total

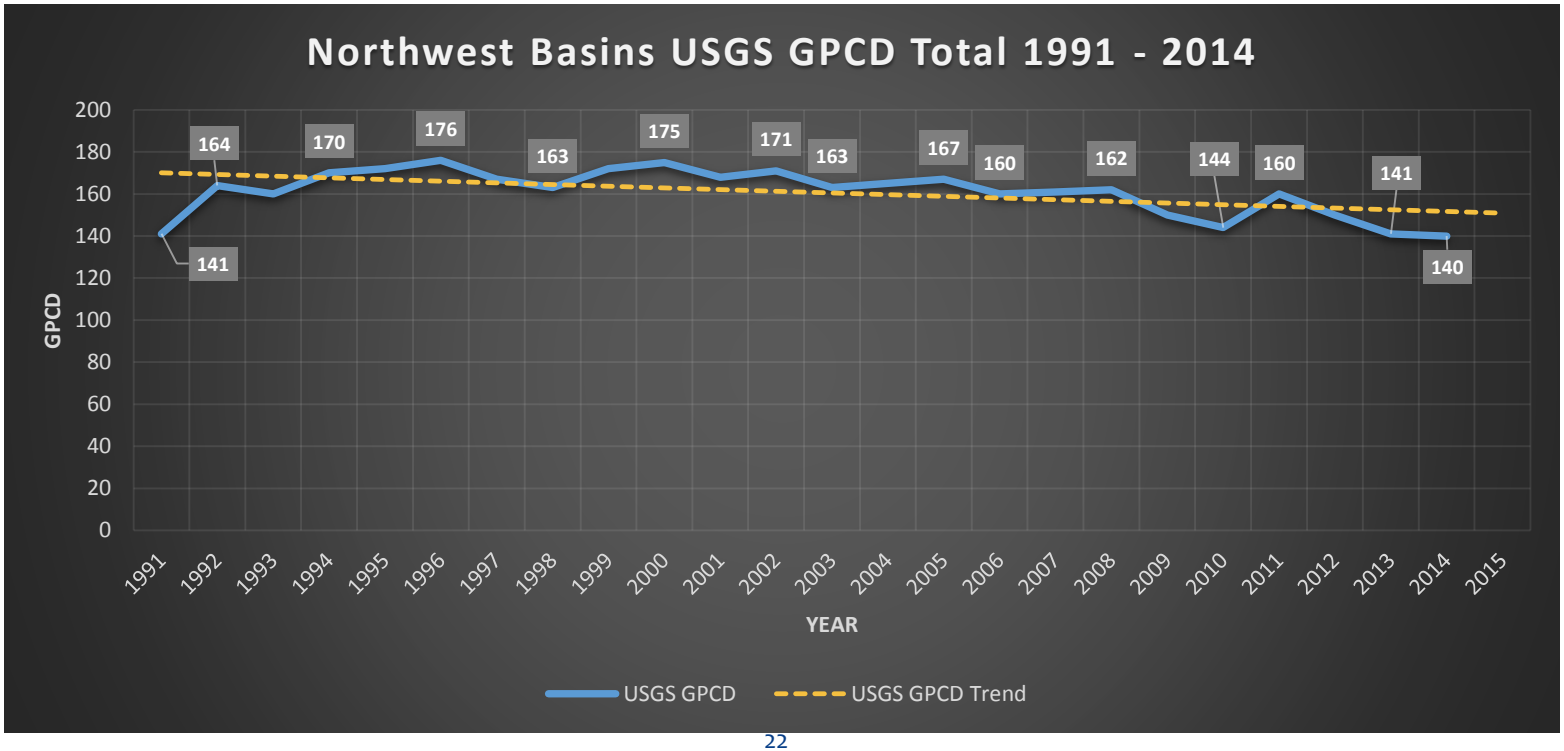
NWB ACC Total GPCD Estimate	2012	2013	2014	2015
Total	126.8	118.4	144.6	119.2



GPCD quantities in Gallons

Northwest Basins Planning Area USGS GPCD Total

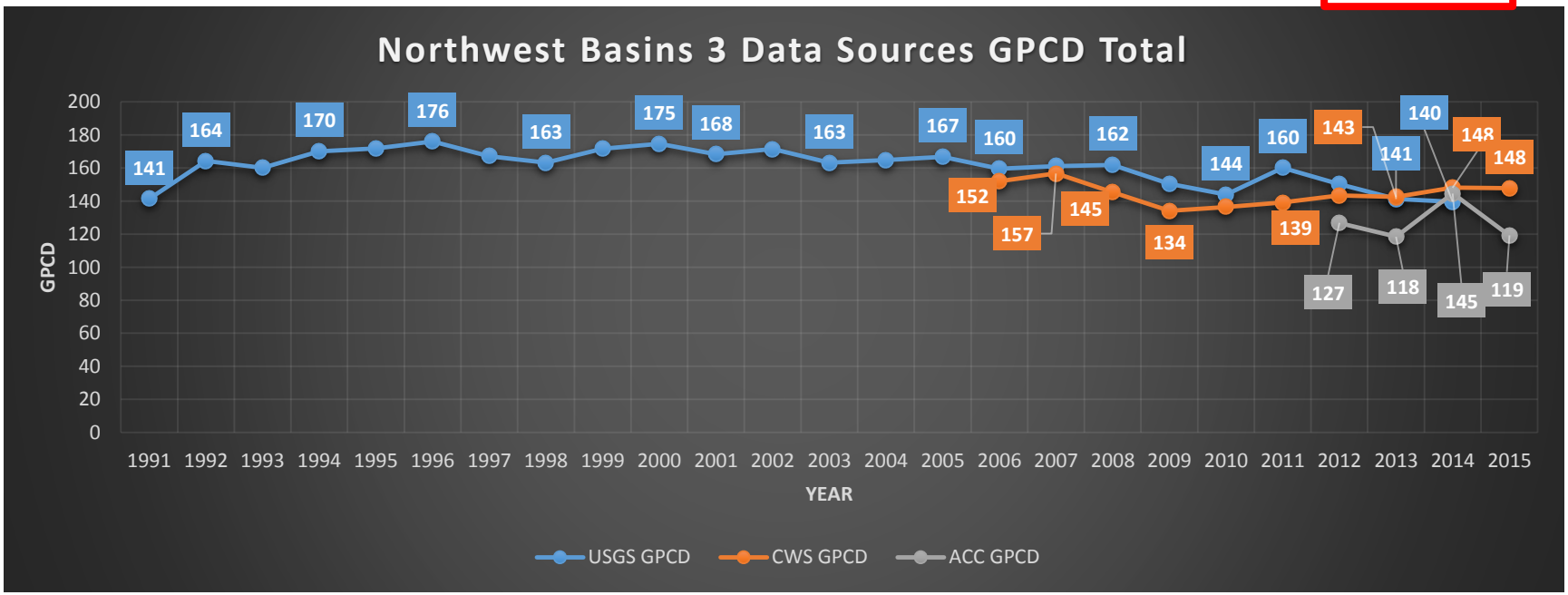
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
USGS GPCD	141	164	160	170	172	176	167	163	172	175	168	171	163	165	167	160	161	162	150	144	160	150	141	140	



GPCD quantities in Gallons

Three Data Source Total GPCD's

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
USGS GPCD	141	164	160	170	172	176	167	163	172	175	168	171	163	165	167	160	161	162	150	144	160	150	141	140	
CWS GPCD																152	157	145	134	136	139	144	143	148	148
ACC GPCD																						127	118	145	119



GPCD quantities in Gallons

GPCD Averages over different ranges

GPCD	2014 (Most Recent)	2010-2014 (5 year)	2005-2014 (10 Year)
CWS	148.1	141.9	144.2**
ACC	144.6	129.9*	129.9*
USGS	139.6	147	153.5
Total Average	**144.1**	**139.6**	**142.5**

Total averages corrected from the version presented on December 6, 2016.

GPCD quantities in Gallons
*ACC Data range 2012-2015
**CWS data range 2006-2015

Comparative Data

Region	Date	Source of Data	GPCD
West Basins Planning Area	2016	ACC & CWS Reporting	87
Cochise Planning Area	2016	CWS Reporting	102
***Northwest Basins Planning Area**	***2014**	**CWS, ACC & USGS Average value**	**144**

Comparative Municipal Water Uses

Northwest Basins Planning Area

West Basins Planning Area

Image Source: "Aguila, AZ." 33°56'18.18"N 113°09'59.61"W GOOGLE EARTH. 11/7/2015; 12/2/2016
Image Source: "Kingman, AZ." 35°12'02.45"N 113°57'50.93" W GOOGLE EARTH. 2/15/2015; 12/2/2016

Comparative Municipal Water Uses

Northwest Basins Planning Area

Source: GOOGLE MAPS; 2016

Comparative Municipal Water Uses

West Basins Planning Area

Source: GOOGLE MAPS; 2016

Data Source Options

Use one Data Source

- Reliability of data
- Gaps
- Which source?
  - ACC: limited range and self-reported data points
  - CWS: self-reported data, some gaps but a larger range
  - USGS: full data set, calculated rather than reported

Use Average of 2 or 3 Sources

- May help smooth noise in any one data set
- May introduce error into data that is reliable
- 2012 – 2014 represents the only period where all three of the data sets overlap

Northwest Basins Next Steps

* We will work together to determine the best GPCD to use as a baseline.
* Next meeting, we will see that baseline GPCD projected in various ways to estimate both a projected GPCD and estimated municipal water demand for the Planning Area.
* Those projections will include:
  1. Projected GPCD according to a trend line analysis
  2. Holding the Baseline GPCD constant over time
* From those projections we can also explore potential municipal conservation ideas.


Discussion
Which GPCD Value works best for a Baseline?
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